
POLICY/PROCEDURES¹**ELECTRONIC IMAGING SYSTEMS STANDARDS FOR WASHINGTON STATE PUBLIC
RECORDS AND RECORDS RETENTION SCHEDULING**

References:	RCW 40.14, WAC 434-663
Contact:	WASHINGTON STATE ARCHIVES
Effective Date:	March 2002
Supersedes:	N/A
Approved:	State Archivist and State Auditor representative for the State and Local Records Committee

Policy

The standards outlined below represent the State's Standards for Electronic Document Imaging Systems technology, per WAC 434-663.

Purpose

The purpose of this policy and these standards is to give direction to government agencies concerning the implementation and use of image enabled Electronic Document Imaging Systems. It puts into effect the requirements and recommendations put forth in WAC 434-663, which includes procedures to:

- Direct government agencies who acquire electronic document imaging systems to meet the existing legal and operational requirements
- Ensure that the primary source document has been properly imaged before destruction

Definitions

For the purposes of this policy, the following definitions apply:

Agency means a governmental entity of state or local government in Washington.

Archival Records are records that have permanent and/or historical value and are scheduled as archival. (WAC 434-663-240)

De Facto Standard is a widely accepted industry standard without official recognition by a standards group. (WAC 434-663-260)

Document Scanning - A process to convert documents or images to machine-readable form for computer processing and storage. At a minimum, the input workstation includes a document scanner, an image processor unit, a video display unit, keyboard, and access to storage. Using a solid-state array or other photosensitive components, the document scanner measures the amount of light associated with successively encountered PELs (Picture Element) and transmits a corresponding electrical signal that is converted to computer compatible digital codes. (WAC 434-663-210)

Electronic Document Imaging System An electronic document imaging system is a computer-based configuration of equipment and software that stores machine-readable document images and their associated character-coded index data for on-demand retrieval. Electronic images can be computer generated, or created through document scanning. (WAC 434-663-200)

Enhancement Any method including adjusting brightness and contrast, or algorithm employed with the objective of producing an accurate and legible copy. (WAC 434-663-230)

¹ *This policy will be treated as a living document, subject to change and improvement like the vigorous technologies it represents.*

Image An image can be a document, picture, or graphic. It can be produced by scanning paper or film documents, producing images through a computer program, receiving an image by means of a fax, or by other means. (WAC 434-663-220)

Long-term Records are records having a retention period in excess of ten years.

Off-site Location means a premises, building or structure that houses an agency's primary imaging system's security back-up that is separate and apart from the on-site premises, building, or structure.

Official Public Records shall include any paper, correspondence, completed form, bound record book, photograph, film, sound recording, map drawing, machine-readable material, compact disc meeting current industry ISO specifications, or other document, regardless of physical form or characteristics, and including such copies thereof, that have been made by or received by any agency of the state of Washington in connection with the transaction of public business. (RCW 40.14.010).

Open System is defined to be a system that implements sufficient public specifications for interfaces, services and supporting formats to enable applications software to be ported across a wide range of systems, to inter-operate or interchange with other applications on local and remote systems, and to interact with users in a style that facilitates portability. Public specifications are maintained by open, public consensus process to accommodate new technology over time, and which are consistent with international standards (WAC 434-663-250)

Permanent Records are those records that are required by specific statute to be retained permanently.

Record Series means a group of records that are created, used, filed, and disposed of as a unit because they relate to a particular subject or function, result from the same activity, or document a specific kind of transaction. (WAC 434-663-270)

Records Retention and Disposition Schedule means a listing of all public records an agency receives, creates, or retains, prescribing where and for how long the public records will be retained and the medium that will be used for retention purposes, as required by Chapter RCW 40.14.

TIFF stands for Tagged Image File Format.

Component	Required (Established) Standards/Recommended Practices
QUALITY OF DIGITAL IMAGES WAC 434-663-300	<ul style="list-style-type: none"> Exercise control over the conversion of the original image to digital data, enhancement, and compression for storage, decompression for retrieval, display, and printing. (REQUIRED)
SCANNING DENSITY WAC 434-663-305	<ul style="list-style-type: none"> Type fonts no smaller than six-point shall be scanned at a minimum density of 200 dots per inch (dpi). Type fonts smaller than six-point, engineering drawings, maps, or similar documents with fine detail or poor contrast, shall be scanned at a minimum density of 300 dots per inch. Until ANSI or AIIM standards for color images are established, color documents must be scanned at 150 dots per inch and use TIFF, Version 5 specifications. Quality Control procedures shall conform to ANSI/AIIM MS44-1988, Practice for Quality Control of Images Scanners. <p style="text-align: right;">(ALL REQUIRED)</p>
COMPRESSION & DECOMPRESSION OF DATA WAC 434-663-325	<ul style="list-style-type: none"> Consultative Committee on International Telegraph and Telephone (CCITT) Group 3 or 4 [CCITT is now known as International Telecommunication Union-Technical (ITU-T)]. (REQUIRED) Storage of images approved for a six year or less retention from the date of creation may use a less compression of TIFF Group 3 or 4 standard. (RECOMMENDED) Color images, TIFF, Group 5. (RECOMMENDED)
OPEN SYSTEMS ARCHITECTURE WAC 434-663-500	<ul style="list-style-type: none"> Purchase or develop Open System Solutions that guarantees the portability of current data to be used with future technologies. (REQUIRED)

Component	Required (Established) Standards/Recommended Practices
<p>SYSTEM DOCUMENTATION WAC 434-663-530</p>	<ul style="list-style-type: none"> • Hardware system administrator manual specifying hardware, cabling, and communications configurations. • Software applications documentation, including user manuals and design documentation. • Operational procedures for scanning, indexing and verifying images • Current security and system change control procedures, including logs of those changes, indicating the date, identity of the person making the changes and the reason for the change. • Written procedures for periodic back-ups, including schedules and the location of secure off-site storage for those backups. <p>(ALL MINIMUM REQUIREMENTS)</p>
<p>RETENTION SCHEDULING AND DISPOSITION OF PUBLIC RECORDS WAC 434-663-600</p>	<ul style="list-style-type: none"> • Destruction of source documents or changes to the retention period of any public records due to conversion to or the use of a new media requires legal approval of the state or local records committee. (REQUIRED)
<p>RECORDS SCHEDULING FOR RECORDS ON IMAGING SYSTEM WAC 434-663-615</p>	<ul style="list-style-type: none"> • Scheduling should be done prior to the creation of an imaged document. • Imaged schedules shall contain content and function at the series level. • Records retention schedules must include information system operation and maintenance for the agency using the system. (ALL REQUIRED)
<p>AGENCY ACQUISITION – DEPT. OF INFORMATION SERVICES APPROVAL WAC 434-663-630</p>	<ul style="list-style-type: none"> • State agencies intending to utilize an imaging system for the storage or conversion of public records must comply with requirements of the Dept. of Information Services (DIS). (REQUIRED)
<p>DISPOSITION OF RECORDS IDENTIFIED AS ARCHIVAL BY THE RECORDS COMMITTEE WAC 434-663-640</p>	<ul style="list-style-type: none"> • May not be destroyed without committee approval, even where images of those records have been produced and stored on an electronic imaging system. (REQUIRED)
<p>USABILITY OF IMAGE AND INDEX DATA OVER TIME WAC 434-663-700</p>	<ul style="list-style-type: none"> • Information must remain accessible for the entire retention period of the record series. • Ensure proper environmental conditions, periodic recopying, and strategies to preserve data by migration from one generation of technology to another. <p>(ALL REQUIRED)</p>
<p>RECORD KEEPING CAPABILITIES WAC 434-663-705</p>	<ol style="list-style-type: none"> (1) Tracks at the record series level. (2) Ability to properly dispose of records that have met their retention. (3) Record authentication functions as needed to meet legal, audit, and administrative requirements: <ul style="list-style-type: none"> • Computer date & time of creation or updating • Identity of the user or system that created or updated the record • System-enforced log of disposition actions (4) Protection against unauthorized access (password hierarchy or other system security). (5) Indexing capabilities that provide flexibility in associating a record series with multiple subject categories that: <ul style="list-style-type: none"> • Facilitate access and retrieval • Provide links to related records or supporting documentation <p>(ALL REQUIRED)</p>
<p>DEFINING INDEXING REQUIREMENTS WAC 434-663-710</p>	<p>The selection of indexing methods and terms should be based on an analysis of the retrieval requirements associated with a particular application.</p> <ul style="list-style-type: none"> • Must maintain efficient and accurate retrieval of images and information for the length of the retention. • Design and content should utilize standard attributes whenever available. • Take into account the security and retrieval requirements of both current and future users of the records (including personnel, researchers, and the public). <p>(ALL REQUIRED)</p>

Component	Required (Established) Standards/Recommended Practices
<p>PRESERVATION STRATEGY WAC 434-663-720</p>	<p>Systems containing records with a long-term retention of ten years or longer, or records containing archival information, one or more of the following strategies must be employed:</p> <ol style="list-style-type: none"> (1) Retain the original paper documents. (2) Microfilm the original documents. (3) At least every ten years or sooner Migrate optical media and magnetic media as is necessary to avoid technical obsolescence, loss of readability, and excessive read error rates. (4) Record the electronic images on industry standard microfilm at the same density at which they were scanned. <p>(AT LEAST ONE METHOD REQUIRED)</p>
<p>HEADER INFORMATION ON IMAGED FILES WAC 434-663-730</p>	<p>For systems containing records with a long-term retention of ten years or longer, or records containing archival information must use a non-proprietary file header format such as:</p> <ul style="list-style-type: none"> • TIFF or a header that complies with ANSI-AIIM MS53. • File Format for Storage and Exchange of Images. • Bi-level File Format: Part 1. <p>(ALL REQUIRED)</p>
<p>SECURITY BACK-UP COPIES WAC 434-663-740</p>	<p>Security backup copies must be made of records stored on electronic media.</p> <ul style="list-style-type: none"> • Frequency should be determined by the amount of information that would be lost if data had to be restored using the previous back up. (REQUIRED) • Due to the possibility of media failure, multiple back-ups should be made and store in different locations (with one copy off-site). (RECOMMENDED) • One back-up copy should be stored on a nonproprietary format. (REQUIRED) • Security back up must be inspected using de facto or industry standards on a regular schedule and replaced before predicted failure. (REQUIRED) • If one of the back-up copies of an operational imaging system is found to deviate from the primary production copy due to corruption or read errors, the discrepancy must be located and both the production and backup copies must be corrected to contain an accurate version of the original images. (REQUIRED)
<p>ENSURING USABILITY WAC 434-663-750</p>	<ul style="list-style-type: none"> • The system must include an electronic error checking utility that will check the integrity of the data when written to the media. (REQUIRED)
<p>ENVIRONMENTAL STANDARDS OR BEST PRACTICES FOR STORAGE OF ELECTRONIC MEDIA WAC 434-663-760</p>	<p>Electronic media should be stored in a dust-free environment under the following:</p> <ol style="list-style-type: none"> (1) Temperature ranges meeting standards and best practices recommended for the media stored. (2) Humidity range meeting standards or best practices recommended for the media stored. (3) Media should be stored in a closed container to protect from dust and fingerprints. (4) Magnetic tape should be rewound in accordance with de facto or industry standards or to best practices. <p>(ALL RECOMMENDED)</p>
<p>CONTINUED ACCESS TO DATA WAC 434-663-770</p>	<p>If access to data in an existing system cannot be maintained for the specified retention period of the records stored in that system:</p> <ul style="list-style-type: none"> • The images must be migrated without loss to the images or indexes at the time of acquisition or implementation of a new system. • Access to data not migrated requires preserving the data, the storage medium in which the data is kept, and whatever hardware, operating system, and applications of software are needed to view and use the data until the retention period has been met. <p>(ALL REQUIRED)</p>
<p>DATA CONVERSION COSTS WAC 434-663-780</p>	<ul style="list-style-type: none"> • System planning should include analysis of future information access, maintenance, data conversion, and security cost. <p>(RECOMMENDED)</p>

STANDARDS BODIES AND REFERENCES

- American National Standards Institute (ANSI)
- International Organization for Standardization (ISO)
- International Telecommunications Union (ITU)
- International Electro technical Commission (IEC)

REFERENCE ORGANIZATIONS

- Association of Information and Image Management (AIIM)
- Document Management Alliance (DMA)
- Institute for Electronic and Electronics Engineers (IEEE)
- National Information Standards Organization (NISO)
- National Institute of Standards and Technology (NIST)

RETENTION SCHEDULING REQUIREMENTS

1. Complete form AR-005 (02/04) - *Request for Approval of Electronic Imaging Systems (EIS) Operation and Maintenance*, and submit to the State Archivist for approval. A copy of this form is attached to this policy.
2. Most records retention schedules have been approved for the paper-based records series. Conversion to an imaging system does not automatically authorize the destruction of primary source documents. Destruction of, or changes to the retention period of any public records due to conversion to a new medium requires legal approval by the state or local records committee of the state of Washington (WAC 434-663-600). Therefore, it is required that a re-evaluation of these records retention schedules be conducted. For destroying a paper-based primary record source document, the review by the Records Committee must be conducted simultaneously when the approval of the electronic document imaging system is done. Records series that requires records committee re-evaluation should be submitted on a records retention schedule together with the AR-005 (02/04) form for the Imaging System approval.

Note:

Following these standards will not necessarily guarantee an electronic imaging system's integrity, but it will help demonstrate the users' good faith in employing the best existing standards in this field.